UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,571	12/05/2003	Kenichi Suenaga	1422-0611P	7359

2292 7590 07/25/2006		EXAMINER
BIRCH STEWART KOLASCH & BIRCH		MARCHESCHI, MICHAEL A
PO BOX 747		
FALLS CHURCH, VA 22040-0747	ART UNIT	PAPER NUMBER
	1755	

DATE MAILED: 07/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)	
Office Action Summary	10/727,571	SUENAGA ET AL.	
	Examiner	Art Unit	
	Michael A. Marcheschi	1755	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>08 May 2006</u>.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

　4a) Of the above claim(s) *9-20* is/are withdrawn from consideration.

5)☐ Claim(s) ＿＿＿ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) ＿＿＿ is/are objected to.

8)☐ Claim(s) ＿＿＿ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on ＿＿＿ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　a)☒ All　b)☐ Some * c)☐ None of:

　　1.☒ Certified copies of the priority documents have been received.

　　2.☐ Certified copies of the priority documents have been received in Application No. ＿＿＿.

　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/8/06</u>.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ＿＿＿ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: ＿＿＿ .

The text of those sections of Title 35, U.S. Code not included in this action can be found

in a prior Office action.

A request for continued examination under 37 CFR 1.114, including the fee set forth in

37 CFR 1.17(e), was filed in this application after final rejection. Since this application is

eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e)

has been timely paid, the finality of the previous Office action has been withdrawn pursuant to

37 CFR 1.114. Applicant's submission filed on 5/8/06 has been entered.

Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

Claim 1 is indefinite because it appears to be defining 2 separate and independent

inventions, as is apparent from the independent formulas. Formula 2 is defined in terms of a

size criteria (40-45 nm) which is much narrower that the size criteria defined by formula 1 (40-

100 nm), thus the size criteria of formula 1 can be well outside the size criteria of formula 2. This

alone suggests that the 2 distinct formulas are defining 2 separate and independent inventions.

For example, assuming R to be the size defined, in formula 1, R can be greater than 45-100 nm

but in formula 2 these R values can never be the R values defined above. In addition, when R is

equal to 40 nm, the calculated V in formula 1 would be $V \geq 60$ and in the latter formula, the V

value would be $V \geq 90$. This calculation clearly shows that 2 independent and distinct inventions

are defined in claim 1. From this, it can be seen that a discrepancy exists between the required

values of the two formulas, thus said formulas are defining independent and distinct inventions

when viewed in terms of the calculated values and size requirements.

Claim 1 is also indefinite because the variables are not sufficiently defined so as to

preclude the determination of what "V" and/or "R" are in said formulas (the claim does not

literally defined "R is...". In other words, the formulas fail to define what "R" is thus, without

this variable, one cannot readily determine what "V" is. In view of this, the examiner cannot

readily determine the metes and bounds of the formulas defined in the instant claims.

Claim 1 is also indefinite because "V", which is defined by as cumulative volume

frequency (this is a %) is a dimensionless variable, thus since R is a size (in nm), a dimensionless

variable (V) cannot be readily obtained from a non dimensionless formula, such as, formula (1)

"0.5 x R (nm) + 40" and formula (2) "R (nm) + 50". In addition, as can be seen from the

formulas, assuming R is defined, the calculated value will be in nm and thus is not a volume

frequency (%) i.e. "V" is not dimensionless.

The other claims are indefinite because they depend on indefinite claims.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koichi et al.

(175).

Koichi et al. teach in the entire document, a polishing composition comprising a mixture

of two or more colloidal silica's having different d50 values, wherein the ratio of the two

different colloidal silica's in terms of amount and size is defined. It is stated that the mixed

silica's have a size of between 10-600 nm. Other variables of the colloidal silica's are defined.

Figures 5-6 show frequencies and particle size distributions. Organic acid and peroxide

(oxidizer) can be added. The reference also defines a pH for the composition (column 7, lines 28-35 and column 8, lines 1-22).

Although the reference fails to literally teach the particulars of the formulas (no V value literally defined), as defined in claim 1, as can be seen from the frequency and particle sizes defined throughout and in and figures 5-6, it is the examiners position that the values defined and extrapolated from the figures, when calculated using the claimed formula, encompass the claimed limitations absent evidence to the contrary. This is apparent because the instant claims fail to define any definite frequency values. All that is definitely defined in the instant claims is the size and since the size can be the same, one can calculate a frequency from claimed formulas and therefore, absent any specific frequency, the calculated values reads on the claimed limitations.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ota et al. (711).

Ota et al. teach in the claims, a polishing composition comprising a mixture of two or more colloidal silica's, wherein the size of the abrasives is defined in terms of nanometers. Other variables of the colloidal silica's are defined. Acids can be added.

Although the reference fails to literally teach the particulars of formulas (no V value literally defined), as defined in claim 1, as can be seen from the particle sizes defined throughout the reference, it is the examiners position that the values defined and extrapolated from these values, when calculated in terms of a frequency, using the claimed formula, encompass the claimed limitations absent evidence to the contrary. This is apparent because the instant claims fail to define any definite frequency values. All that is definitely defined in the instant claims is

the size and since the size can be the same, one can calculate a frequency from claimed formulas

and therefore, absent any specific frequency, the calculated values reads on the claimed

limitations. With respect to the pH, all compositions have a pH which is dependent on the

composition and it is the examiners position that since the composition is the same, the claimed

pH is apparent absent evidence to the contrary.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-

327170 (related to Oshima (789) previously used and the CN document cited on the IDS of

5/8/096).

The reference teaches in the abstract, and sections [0011]-[0042], a polishing

composition comprising a mixture of two or more colloidal silica's, wherein the size of the

abrasives is defined in terms of d10, d50 (10-600 nm) and d90 values. It is stated that the mixed

silica's have a size of between 10-600 nm. Other variables of the colloidal silica's are defined.

An organic phosphonic acid and an oxidizer are also present. The reference also defines a pH for

the composition.

Although the reference fails to literally teach the particulars of the formulas (no V value

literally defined), as defined in claim 1, as can be seen from the frequency and particle sizes

defined throughout and in and figures 5-6, it is the examiners position that the values defined and

extrapolated from the figures, when calculated using the claimed formula, encompass the

claimed limitations absent evidence to the contrary. This is apparent because the instant claims

fail to define any definite frequency values. All that is definitely defined in the instant claims is

the size and since the size can be the same, one can calculate a frequency from claimed formulas

and therefore, absent any specific frequency, the calculated values reads on the claimed

limitations.

Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rostoker et al.

The reference teaches column 4, lines 20-24, column 7, lines 40-44 and 65-68, column

10, lines 22-25 and claim 10, a polishing composition comprising an abrasive, wherein the

abrasive meets the size distribution defined in claim 10. The examiner acknowledges that claim 1

uses alumina, as the abrasive, but the reference clearly defines that colloidal silica can be used in

place of the alumina. With this substitution being apparent, the size of the colloidal silica, which

would have been appreciated by the skilled artisan, would necessarily follow the size

requirements defined for the alumina.

Although the reference fails to literally teach the particulars of the formulas (no V value

literally defined), as defined in claim 1, the size of the silica can be 40-45 nm (X value) and the

size distribution (Y value) can be zero (as is apparent from the interpretation of "P" being less

than 50% (i.e. zero)). In view of this, the reference is disclosing a monodispersed distribution

(all of the particles can be the same size). Since all of the particles can be the same size, it would

follow that the volume frequency of this size is 100%, reading on the instant claims.

Applicant's arguments filed 5/8/06 have been fully considered but they are not

persuasive.

ARGUMENTS BASED ON INDEFINITE REJECTIONS:

Applicants argue that the declaration of 4/10/06 by Yoshiaki Oshima establishes that

formula 5 is a subset of formula 1 and thus the claim requires that both formula limitations be

met. The examiner acknowledges the declaration. Even though formula 5 (now the latter

formula in instant claim 1) is a subset of formula 1, the subset is an independent limitation

because the particulars of the generic formula (formula 1) define requirements that are outside

the scope of the latter formula. For example, the size values are different (formula 1 defines that

the size can be greater than 45-100 nm and these sizes are not required in the latter formula) and,

assuming the sizes defined are the R values, when calculated from the R values, the V value of

formula 1 would be $V \geq 60$ and in the latter formula, the V value would be $V \geq 90$. From this, it

can be seen that a discrepancy exists between the required values of the two formulas, thus said

formulas are defining independent and distinct limitation when viewed in terms of the calculated

values and size requirements. Just because one formula is a subset of the other formula does not

mean that the combination of formulas define definite subject matter. To further establish the

examiners position, reference is given to Figures 1(a) and 2(a) of the declaration filed 4/10/06.

These figures clearly establish that formula 1 is much more broader than formula 5, thus formula

1 defines an independent invention since it is broader than the scope of formula 5. Although

formula 5 (latter formula in instant claim 1) is narrower than formula 1 and encompasses V

values within formula 1, as well as, particles sizes defined for formula 1 (is a subset of formula

1), it would appear that the latter formula is defining a "proviso" of formula 1. Since the claim is

not defined in such a manner to clearly establish a "proviso", the claim, as written, is indefinite

because it would appear to be defined two separate entities and thus inventions. It is suggested

that the claim be rewritten to clearly establish that the latter formula is a proviso of formula 1,

when the particle size is 40-45 nm.

ARGUMENTS BASED ON ALL PREVIOUS ART REJECTIONS:

The rejections based on Oshima (789) and Oshima et al. (146) have been withdrawn in

view of (1) the statement of common ownership and (2) the certified translation of the priority

document.

Applicants argue that Koichi et al. teaches in embodiments 1 and 2 a favorable D10 value

and a favorable percentage of sizes less than 40 nm. The examiner acknowledges these

teachings but these teaching are the preferred embodiments, and as is well known, a reference

can be used for all it realistically teaches and is not limited to the disclosure in its preferred

embodiments See *In re Van Marter*, 144 USPQ 421. Applicants also refer to the examples of

the reference but a reference is not limited to only the examples. Applicants state that it can be

reasonably "presumed" that the examples do not meet the claimed formulas. This statement is

based on the examples of the reference and a reference is not limited to only the examples. In

addition, a statement of "presumption" is not a persuasive argument absent specific results to

support this argument. Applicants also argue that the distribution defined in the reference is on a

number basis and it can not be directly compared with a distribution on a volume percent. The

examiner is unclear as to this argument because the size distribution of the reference must

contain a volume of sizes and burden is upon applicants to show clear evidence as to why the

distribution of the reference would not constitute particles in the claimed volume relationship.

Applicants submit a declaration (filed on 4/10/06) to establish that the cumulative particle size

distribution based on a **number** basis cannot be readily translated into a cumulative particle size

distribution based on a **volume** basis because the volume basis is based on the sizes of the entire

particles. The examiner acknowledges this declaration, as the correlation between and number

basis and a volume basis cannot be readily translated due to various factors, such as size, as well

as density (density factor not literally defined in declaration). The declaration, however, is

insufficient to overcome the previous rejection because in the formulas of the claims, the

variables are not sufficiently defined so as to preclude the determination of what "V" or "R" are

in said formulas. In other words, the formulas fail to define what "R" is thus, without this

variable, one cannot readily determine what "V" is. In addition, "V", which is defined by as

cumulative volume frequency (this is a %) is a dimensionless variable, thus since R is a size (in

nm), a dimensionless variable (V) cannot be readily obtained from a non dimensionless formula,

such as, formula (1) "0.5 x R (nm) + 40" and formula (2) "R (nm) + 50". In addition, as can be

seen from the formulas, assuming R is defined, the calculated value will be in nm and thus is not

a volume frequency (%) i.e. "V" is not dimensionless. In as much as the examiner cannot readily

determine the metes and bounds of the formulas defined in the instant claims, it would appear

from instant figure 1 that the volume frequency (up to 80%-see curve for example 6 in figure 1)

of the particles of the invention lie between about 27-55 nm. The reference literally discloses a

d10 value of 30 nm, a d50 value of 40 nm and a d90/d50 ratio of 1.3 (thus a calculated d90 value

52 nm). From this, it can be seen that most of the particles fall with a size of 35-52 nm and since

a volume frequency must be associated with the particles, it is the examiners position that this

still reads on the claims. Applicants have not clearly shown evidence otherwise. In summary,

(1) without any specific comparative evidence between the claimed invention and that of the

reference and (2) a clear indication of what the claimed formulas are defining, applicants

formulas are not seen to define a patentable invention over the reference. Referring back to the

favorable aspect argued and addressed above, applicants state that this favorability is opposite to

features of the instant claims. As defined above, the reference is not limited to this favorability,

as argued. In addition, the claimed formulas, as defined, do not clearly depict the feature argued

(majority of particles less than 40 nm).

It is the examiners position that from the data of the percentages for the D10 value

(column 5, lines 1-5) coupled with percentages for the D50 and D90 (column 4, lines 32-41), as

well as, figures 5-6, volume percents can be determined (depending on the size and density of the

silica used), and this appears to encompass the claimed values. Applicants have not provided

any clear evidence establishing that the claimed volume relationship is patentable over this

reference. Finally, the distribution of the reference must have some volume associated therewith

and applicants have not shown clear evidence as to why the distribution of the reference will not

meet the claimed formulas.

Applicants argue that the distribution defined in Ota et al. is on a number basis and it can

not be directly compared with a distribution on a volume percent. The examiner is unclear as to

this argument because the size distribution of the reference must contain a volume of sizes and

burden is upon applicants to show clear evidence as to why the distribution of the reference

would not constitute particles in the claimed volume relationship. It is the examiners position

that from the data of the percentages for the individual silica's, volume percents can be

determined (colloidal silica of the reference would appear to be the same in density), and this

appears to encompass the claimed values. Applicants have not provided any clear evidence

establishing that the claimed volume relationship is patentable over **this reference** (no

comparison between the reference and the claimed invention). Applicants also appear to argue

the examples (preferred embodiments) of this reference, but as is well known, a reference can be

used for all it realistically teaches and is not limited to the disclosure in its preferred

embodiments See *In re Van Marter*, **144 USPQ 421.** Finally, applicants state that the instant

specification (i.e. table 4) establishes unexpected results over this reference. The examiner

acknowledges these results, however, any evidence provided is not commensurate in scope with

the claims. The claims are much broader in scope that that defined in the tables. Evidence of

unexpected results must be clear and convincing. *In re Lohr* 137 USPQ 548. Evidence of

unexpected results must be commensurate in scope with the subject matter claimed. *In re Linder*

173 USPQ 356. Finally, the distribution of the reference must have some volume associated

therewith and applicants have not shown clear evidence as to why the distribution of the

reference will not meet the claimed formulas. Applicants also argue this reference in view of the

declaration submitted on 4/10/06. The examiner acknowledges this declaration but said

declaration does not clearly establish that the polishing composition set forth by this reference

cannot have a volume frequency consistent with the claims. As a further comment to applicants

argument with respect to the declaration, applicants appear to argue that in this reference, the

particle size for a portion of the particles is unknown. The examiner disagrees because the

reference clearly teaches sizes for all of the particles. Finally, the examiners comments with

respect to the claimed formulas above (determination of "V" and "R"), as well as, the declaration

establishing that a distribution based on a **number** basis can not be readily translated into a

cumulative particle size distribution based on a **volume** basis because the volume basis is based

on the sizes of the entire particles are hereby incorporated by reference.
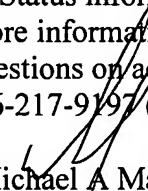
In summary, all sizes must have a volume associated therewith and applicants have not

presented any compelling evidence that the reference will not have a volume frequency that can

be within the claimed range.

Any inquiry concerning this communication or earlier communications from the
examiner should be directed to Michael A. Marcheschi whose telephone number is (571) 272-
1374. The examiner can normally be reached on M-F (8:00-5:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's
supervisor, Jerry Lorengo can be reached on (571) 272-1233. The fax phone number for the
organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent
Application Information Retrieval (PAIR) system. Status information for published applications
may be obtained from either Private PAIR or Public PAIR. Status information for unpublished
applications is available through Private PAIR only. For more information about the PAIR
system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR
system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

7/06   Michael A Marcheschi
MM   Primary Examiner
                                               Art Unit 1755